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JERRY.SHORMA@HP.COM

ipa.mail@hp.com

laura.m.clark@hp.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LUDMILA CHERKASOVA, WENTING TANG,
and SHARAD SINGHAL

Appeal 2009-011665
Application 10/801,793
Technology Center 2400

Before HOWARD B. BLANKENSHIP, JOHN A. JEFFERY, and
ST. JOHN COURTENAY III, *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1, 3-26, 28-32, 34-40, and 42-46. We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part.

STATEMENT OF THE CASE

Appellants' invention evaluates a media server's capacity to support an expected workload in compliance with a service parameter. *See generally* Spec. ¶¶ 0007-12. Claim 1 is illustrative:

1. A method comprising:

receiving, into a capacity planning system, workload information representing an expected workload of client accesses of streaming media files from a site;

receiving, into said capacity planning system, at least one service parameter that defines a desired service characteristic to be provided by a media server configuration under the expected workload and defines a desired service characteristic to be provided by a media server configuration during periods of degraded service under the expected workload; and

determining, by said capacity planning system, for at least one server configuration, how many servers of said at least one server configuration to be included at said site for supporting the expected workload in compliance with said at least one service parameter.

The Examiner relies on the following as evidence of unpatentability:

Huckins	US 5,890,162	Mar. 30, 1999
Eilam	US 2004/0111509 A1	June 10, 2004 (filed Dec. 10, 2002)

THE REJECTION

The Examiner rejected claims 1, 3-26, 28-32, 34-40, and 42-46 under 35 U.S.C. § 103(a) as unpatentable over Eilam and Huckins. Ans. 4-25.¹

¹ Throughout this opinion, we refer to (1) the Appeal Brief filed December 12, 2008; (2) the Examiner's Answer mailed March 12, 2009; and (3) the Reply Brief filed May 11, 2009.

CONTENTIONS

Regarding representative claim 1, the Examiner finds that Eilam discloses a capacity planning system with every recited feature except for streaming media files and a media server, but cites Huckins as teaching this feature in concluding the claim would have been obvious. Ans. 4-5. The Examiner also acknowledges that Eilam does not explicitly teach a service parameter that defines the service characteristic during periods of degraded service, but nonetheless contends that this degraded-service aspect is non-functional, and, in any event, is inherently subjective. Ans. 5-6, 27-28. These “subjective” conditions are said to be considered in view of Eilam’s accounting for conditions associated with weekdays and weekends, as well as long- and short-term conditions. Ans. 27-28.

Appellants argue that the cited prior art does not teach or suggest a service parameter that defines a desired service characteristic during periods of degraded service as claimed. App. Br. 11-13; Reply Br. 2-3. Appellants emphasize that this limitation is functional since determining the number of servers to support the expected workload as claimed must comply with this parameter. Reply Br. 2-3. Appellants also argue various limitations of other claims which are summarized in the issue statement below. App. Br. 13-18; Reply Br. 4-7. The issues before us, then, are as follows:

ISSUES

Under § 103, has the Examiner erred by finding that Eilam and Huckins collectively would have taught or suggested:

(1) a service parameter defining a desired service characteristic during periods of degraded service under expected workload as recited in claim 1?

(2) the service parameter specifying a limit on the amount of degradation of service encountered during periods of degraded service as recited in claim 3?

(3) a performability parameter defining a service characteristic during non-compliant periods of operation as recited in claim 11?

(4) a performability parameter defining a desired limit on the amount of continuous overload encountered by a server under the expected workload as recited in claim 22?

(5) a performability parameter specifying a desired limit on degradation of quality of service during periods of degraded service as recited in claim 44?

FINDINGS OF FACT (FF)

1. Appellants' capacity planning tool "allow[s] for the service provider to specify service parameters that define limits as to the amount of service degradation experienced during "non-compliant" periods (periods during which the media server configuration is overloaded)." Spec. ¶ 0033.

2. Appellants' "Performability Parameters" "define limits on how 'bad' the system performance may be during non-compliant time periods (e.g., during periods of performance degradation resulting, for example, from overload and/or node failure in a multi-node cluster system)." *Id.*

3. "Performability Parameter(s) 104B define the type of service desired to be provided by the service provider during non-compliant periods (e.g., periods of degraded performance resulting, for example, from overload and/or failure of one or more nodes of a clustered media server, etc.)." Spec. ¶ 0043.

4. Eilam's system dynamically allocates servers according to expected and current workload. To this end, traffic and workload are monitored continuously, and a Long-Term Forecasting Module (LTFM) 204 analyzes associated logged data (load metrics 201) to generate a forecast of traffic and workload for the next day. These forecasts are then consolidated with customer contract information to generate a Resource Allocation Plan (RAP) for the next day to optimally assign servers to customers. Eilam, Abstract; ¶¶ 0001, 0020-21, 0032, 0035-37; Fig. 2.

5. Eilam's long-term forecast (LTF) is based on the observation that there are seasonal patterns in Internet traffic, so that, for every customer, similar shapes of traffic are expected to repeat daily (possibly distinguishing between weekdays and weekends, or different days of the week, etc.). Eilam, ¶ 0035.

6. The LTF is provided to a Short-Term Forecasting Module (STFM) 208 to refine the LTF for the next 10 to 20 minutes according to monitored metrics 201. Eilam, ¶ 0035; Fig. 2.

7. A bound or preset limit may be imposed on the number of servers that can be allocated to a single customer. Eilam, ¶ 0071.

8. Eilam discusses in connection with a known system in Figure 1 that threshold events are generated according to the current load. Resource Manager 101 allocates or de-allocates servers according to these threshold values. Eilam, ¶ 0034.

ANALYSIS

Claims 1 and 4-10

Based on the record before us, we find no error in the Examiner's obviousness rejection of representative claim 1 which calls for, in pertinent part, a service parameter defining a desired service characteristic *during periods of degraded service* under expected workload. Since the dispute before us hinges on whether Eilam teaches or suggests this limitation, and there is no dispute regarding the combinability of Eilam and Huckins, we therefore confine our discussion to Eilam.

The Examiner apparently takes alternative positions in construing the disputed "degraded service" aspect of the recited service parameter noted above. On the one hand, the Examiner contends that this aspect is non-functional. Ans. 5-6. On the other hand, the Examiner indicates that "degraded service" is subjective, and Eilam accounts for such conditions at least in terms of distinguishing traffic conditions associated with weekdays and weekends, as well as long- and short-term conditions. Ans. 27-28.

First, we agree with Appellants (Reply Br. 3) that the degraded service aspect of the recited service parameter is functional since it is used by the capacity planning system as a basis to determine the number of servers to include at a site to support the expected workload as claimed. Nevertheless, we see no error in the Examiner's alternative position that Eilam at least suggests the recited service parameter's degraded service aspect given the breadth of the term "degraded service."

Notably, Appellants' Specification does not define "degraded service," but rather describes it in exemplary terms, namely in terms of overload and node failure in connection with "non-compliant" periods. *See*

FF 1-3. In this regard, Appellants indicate that “performability parameters” define the type of “service provided during non-compliant periods (*e.g.*, periods of *degraded performance* resulting, *for example*, from overload and/or failure of one or more nodes of a clustered media server, *etc.*).” FF 3 (emphases added). These emphasized exemplary and open-ended terms are telling, for they hardly limit a period of “degraded service” to these particular examples.

Given this breadth, we therefore find no error in the Examiner’s position (Ans. 27-28) that Eilam’s distinguishing daily traffic “shapes” between weekdays and weekends at least suggests that respective service levels would be different between these periods given their disparate traffic patterns and volume. *See* FF 5. That is, a higher traffic volume (*e.g.*, on a weekday) could result in a period of degraded service (*e.g.*, slower speed) for an expected workload, at least with respect to the service provided for periods of lower traffic volume (*e.g.*, weekends). We therefore see no reason why this traffic-based distinction between particular days of the week would not at least suggest a period of “degraded service” under an expected workload, at least in a relative sense.

We are therefore not persuaded that the Examiner erred in rejecting representative claim 1, and claims 4-10 not separately argued with particularity.

Claim 3

We will not, however, sustain the Examiner’s rejection of claim 3 which recites that the service parameter specifies a limit on the amount of degradation of service encountered during periods of degraded service.

Although Appellants do not squarely address the Examiner's reliance on Eilam's Paragraph 71 for this feature,² we fail to see—nor has the Examiner shown—how Eilam's limiting the number of servers to allocate to a customer (FF 7) specifies a *limit on the amount of degradation of service* encountered during such periods, let alone specifying this limit in the service parameter. The Examiner's brief reference to this limitation in the Response to Arguments section of the Answer (Ans. 28) simply does not explain how Eilam specifies limiting the *amount* of service degradation. Nor will we speculate in this regard here in the first instance on appeal. We are therefore persuaded that the Examiner erred in rejecting claim 3.

Claims 11-21

We will, however, sustain the Examiner's rejection of representative claim 11 which recites a performability parameter that defines a service characteristic during non-compliant periods of operation. This limitation is similar to claim 1 except for reciting a performability parameter and “non-compliant” periods of operation. Nevertheless, our analysis regarding claim 1 applies equally here, particularly since the Specification indicates that periods of degraded performance are examples of non-compliant periods. FF 2-3. We are therefore not persuaded that the Examiner erred in rejecting representative claim 11, and claims 12-21 not separately argued with particularity.

² Compare App. Br. 13-14 (citing Eilam, ¶ 0022) with Ans. 18 (citing Eilam, ¶ 0071).

Claims 22-26, 28-32, 34-40, 42, and 43

We will not, however, sustain the Examiner's rejection of independent claim 22 which recites, in pertinent part, a performability parameter defining a desired limit on the *amount of continuous overload* encountered by a server under the expected workload. Although Eilam uses load metrics as a basis to construct a forecast (FF 4) and in determining threshold values in connection with the known system shown in Figure 1 (FF 8), we fail to see—nor has the Examiner shown—how Eilam's forecast determination of Figure 2 involves a parameter that specifies a limit on the *amount of continuous overload* encountered by a media server configuration as claimed as Appellants indicate. App. Br. 15-16. Nor will we speculate in this regard here in the first instance on appeal.

We are therefore persuaded that the Examiner erred in rejecting independent claim 22; (2) independent claims 30 and 36 which recite commensurate limitations; and (3) dependent claims 23-26, 28, 29, 31, 32, 34, 35, 37-40, 42, and 43 for similar reasons.

Claims 44-46

We likewise reverse the Examiner's rejection of independent claim 44 which recites, in pertinent part, a performability parameter specifying a desired limit on degradation of quality of service during periods of degraded service. As noted previously, we fail to see—nor has the Examiner shown—how Eilam's forecasting and server allocation technique (FF 4-7) specifies a desired limit on degradation of service quality during periods of degraded service. The Examiner's reference to various passages in Eilam as allegedly teaching this feature (Ans. 17) is unavailing, for the Examiner does not

explain how a particular limit on service quality degradation is determined, let alone specified in performability parameters as claimed. Nor will we speculate in this regard here in the first instance on appeal.

We are therefore persuaded that the Examiner erred in rejecting independent claim 44, and dependent claims 45 and 46 for similar reasons.

CONCLUSION

Under § 103, the Examiner did not err in rejecting claims 1 and 4-21, but erred in rejecting claims 3, 22-26, 28-32, 34-40, and 42-46.

ORDER

The Examiner's decision rejecting claims 1, 3-26, 28-32, 34-40, and 42-46 is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART